

We claim:

1. A method for the prevention or treatment of disease conditions in patients by downregulating the expression and/or activity of components selected from the group consisting of protein kinase C, nuclear factor kappa-B, ubiquitin-conjugating enzymes and components of 26S proteasome which comprises administering HMB, its salts, metabolites or derivatives thereof.
2. The method according to claim 1 wherein the administration of HMB, its salts, metabolites or derivatives thereof downregulates the expression and/or activity of protein kinase C.
3. The method according to claim 1 wherein the administration of HMB, its salts, metabolites or derivatives thereof downregulates the expression and/or activity of nuclear factor kappa-B.
4. The method according to claim 1 wherein the administration of HMB, its salts, metabolites or derivatives thereof downregulates the expression and/or activity of ubiquitin-conjugating enzymes.
5. The method according to claim 1 wherein the administration of HMB, its salts, metabolites or derivatives thereof downregulates the expression and/or activity of components of 26S proteasome.
6. The method according to claim 1 wherein at least one of the components selected from the group consisting of L-carnitine, amino nitrogen source enriched with large neutral amino acids substantially lacking free amino acids, omega-3 fatty acids and indigestible oligosaccharide is administered in combination with the HMB or its salts thereof.
7. The method according to claim 1 wherein the disease condition is selected from the group consisting of cancer, cachexia, age-associated wasting, wasting associated with long-term hospitalisation, HIV/AIDS, arthritis, trauma, liver disease, Crohn's disease, IBD, renal insufficiency and COPD.
8. The method according to claim 7 wherein the disease is cachexia.
9. A composition comprising:
  - a. HMB, its salts, metabolites or derivatives thereof;
  - b. carnitine;
  - c. amino nitrogen source enriched with large neutral amino acids; andwherein said composition is substantially lacking in free amino acids.
10. The composition according to claim 9 wherein said HMB is selected from the group consisting of sodium HMB, potassium HMB, magnesium HMB, chromium HMB, calcium HMB, alkali metal HMB, alkaline earth metal HMB and HMB lactone.

11. The composition according to claim 9 further comprising  $\omega$ -3 fatty acids.
12. The composition according to claim 11 wherein said  $\omega$ -3 fatty acids are selected from the group consisting of eicosapentaenoic acid and docosahexaenoic acid.
13. The composition according to claim 9 wherein said large neutral amino acids comprise at least 10% of the amino nitrogen source.
14. The composition according to claim 9 wherein said free amino acids comprise less than 0.4 gm/serving of the composition.
15. The composition according to claim 9 further comprises less than 2 grams per serving of carnitine.
16. The composition according to claim 9 further comprising at least 1 gram per serving of FOS.
17. The composition according to claim 9 further comprising a nutrient selected from the group consisting of vitamins, minerals, and trace minerals.
18. A composition comprising:
  - a. from about 2 to 10 gm/liter calcium HMB;
  - b. at least 1 gram per liter of  $\omega$ -3 fatty acids;
  - c. from about 1 to about 8 gm/liter carnitine;
  - d. from about 1 to about 25 gm/liter FOS;
 amino nitrogen source enriched with large neutral amino acids, wherein said amino nitrogen source comprises from about 10 to 60 wt/wt % large neutral amino acids; and wherein said composition is substantially lacking in free amino acids.
19. The composition of claim 9 wherein said composition is administered to a human or an animal.
20. The composition of claim 9 wherein said composition is selected from the group consisting of dietary supplement, meal replacement, nutritional bars, chews or bites and beverage.
21. A method of treating disease-associated wasting of a patient comprising administering the composition according to claim 9 to said patient.